

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A method for manufacturing a flat printed wiring board in which spaces between circuit patterns are filled with a resin, said method comprising the following steps:

providing a printed wiring board having circuit patterns formed thereon;

laminating via a mold release film a plurality of sets of laminated bodies formed by superposing a semi-cured resin sheet ~~on a~~ on said circuit patterns of said printed wiring board ~~with said circuit patterns formed thereon;~~

placing the laminated plural sets of said laminated bodies interposed between a pair of smoothing plates;

collectively pressing said laminated bodies in a reduced pressure atmosphere;

curing said resin; and

polishing said cured resin covering said circuit patterns, thereby exposing said circuit patterns.

Claim 2 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 1, wherein said circuit patterns are formed on both sides of said printed wiring board.

Claim 3 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 2, including a further step of superposing a metallic foil with a roughened surface facing said resin layer onto said resin layer.

Claim 4 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 3, wherein said metallic foil is formed with a different kind of metal than the kind of metal used to form said circuit pattern.

Claim 5 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 4, wherein said metallic foil is nickel.

Claim 6 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 3 wherein the step of polishing comprises the steps of:

ceramic buff polishing to remove resin layers from the circuit pattern; and

finish polishing to reduce the average roughness of the surface of the flat printed wiring board.

Claim 7 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 1 wherein said circuit patterns are formed by an additive method.

Claim 8 (Currently Amended) A method for manufacturing a flat printed wiring board in which spaces between circuit patterns are filled with a resin, said method comprising the following steps:

providing a printed wiring board having said circuit patterns formed thereon;

superposing laminating a semi-cured resin sheet on said circuit patterns ~~printed on a~~ of said printed wiring board to form a board assembly;

stacking a predetermined number of said board assemblies with a mold release film interposed between every adjacent said board assembly to create a stack of board assemblies;

superposing a first smoothing plate on a first surface of said stack of board assemblies via a first mold release film;

superposing a second smoothing plate on a second surface of said stack of board assemblies via a second mold release film;

pressing said first and second smoothing plates and said stack of board assemblies in a reduced atmosphere environment;

heating said stack of board assemblies so as to cure the semi-cured resin sheets;

polishing each board assembly so as to expose each corresponding said circuit pattern.

Claim 9 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 8, wherein said printed wiring board of said board assembly comprises a first board surface and a second board surface, and

wherein said circuit pattern is printed on said first board surface, and

wherein a second circuit pattern is printed on said second board surface, and
wherein a second semi-cured resin sheet is superposed on said second circuit pattern, and
wherein each board assembly is further polished to expose each corresponding second circuit pattern.

Claim 10 (Previously Presented) The method for manufacturing the flat printed wiring board of claim 9 further comprising the steps of:

superposing a metallic foil with a roughened surface onto said semi-cured resin sheet wherein the roughened surface contacts said semi-cured resin sheet, and

superposing a second metallic foil with a second roughened surface onto said second semi-cured resin sheet wherein the second roughened surface contacts said second semi-cured resin sheet.

Claim 11 (Currently Amended) A method for manufacturing a flat printed wiring board comprising the steps of:

stacking a semi-cured resin sheet on each of a surface of a printed wiring board comprising a printed circuit pattern;

stacking a metallic foil with a roughened surface onto each of the semi-cured resin sheets wherein the roughened surface contacts the corresponding semi-cured resin sheet;

stacking a predetermined number of the printed wiring boards comprising said corresponding semi-cured resin sheets, said corresponding metallic foils, and said corresponding circuit patterns, wherein adjacent printed wiring boards are separated by a corresponding mold release film and additional said corresponding mold release films are also placed over a first end and a second end of said stack of printed wiring boards;

placing said stack of printed wiring boards and said corresponding mold release films between a first smoothing plate and a second smoothing plate;

compressing said first smoothing plate and said second smoothing plate and said corresponding stack of printed wiring boards and said corresponding mold release films in a reduced pressure environment so as to reduce a thickness of each of a combination of printed wiring board and corresponding semi-cured resin sheets;

heating said stack of printed wiring boards so as to cure each said corresponding semi-cured resin sheets;

removing said corresponding metallic foils from each printed wiring board;

polishing each printed wiring board to expose said corresponding circuit patterns.

Claim 12 (Previously Presented) The method for manufacturing the flat printed wiring board of claim 11, wherein said printed circuit pattern comprises:

a first printed circuit pattern printed on a first surface of the printed wiring board; and

a second printed circuit pattern printed on a second surface of the printed wiring board.

Claim 13 (Previously Presented) The method for manufacturing the flat printed wiring board of claim 12, wherein said first printed circuit pattern and said second printed circuit pattern are respectively formed by a subtractive method.

Claim 14 (Previously Presented) The method for manufacturing the flat printed wiring board of claim 12, wherein a thermosetting epoxy resin is used as a material of said semi-cured resin sheets.

Claim 15 (Previously Presented) The method for manufacturing the flat printed wiring board of claim 12, wherein a thermosetting resin is used as a material of said semi-cured resin sheets.

Claim 16 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 1, including a further step of superposing a metallic foil with a roughened surface facing said resin layer onto said resin layer.

Claim 17 (Previously Presented) The method for manufacturing the flat printed wiring board according to claim 16, wherein said metallic foil is formed with a different kind of metal than the kind of metal used to form said circuit pattern.